



NEWSLETTER OF THE LONDON CHAPTER,
ONTARIO ARCHAEOLOGICAL SOCIETY
Grosvenor Lodge, 1017 Western Road, London, ON. N6G 1G5
(519) 645-2844



October, 1995

95-6

THE ISOTOPIC DEFINITION OF ETHNICITY AT TEOTIHUACAN

Christine White, University of Western Ontario
Thursday, November 9th, 7:30 PM

This month we feature local Chapter member and part of the Gang up at the U, Christine White, who will present some of the work she has been doing with skeletal material from one of the most important sites in Mexico. Come on out and see what real urban archaeology is all about! As always, the meeting will be held at Grosvenor Lodge, so come out early for some conversation, coffee and cookies.

December Christmas Party: As usual, in December the Chapter will hold its annual Christmas Party, this year hosted by Christine Dodd and Dana Poulton at 69 Langarth St. W., in south London. The party will be held on Saturday the 16th of December. Further details will appear in next month's newsletter.

Chapter Executive

ANNUAL RATES

Individual.....	\$15.00
Family.....	\$18.00
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EXECUTIVE REPORT

As mentioned in last month's issue of **KEWA**, now is the time of year for all well intentioned Chapter members to offer themselves up for service to the community, in the form of nominations for next year's Executive. And that need to find a new list of candidates just got more urgent, with the recent news that Pat Weatherhead had been nominated to serve on the provincial OAS Executive in 1996. OAS rules prohibit a member from serving in more than one executive capacity, so Pat will definitely not be running for president next year - unfortunately she figured out the one way to get out of her "appointment-for-life" status with the Chapter! Best of luck in Toronto Pat, and give 'em 'ell!!

However, back here on our patch, it looks like we've got a real vacuum to fill. So, if you've ever had dreams of being a benevolent dictator, or just think you can help the Chapter muddle through, please consider nominating yourself for one of the Chapter Executive positions for the 1996 year. Once again Christine Dodd is the Chapter's nominating committee, so just give her a call (438-9595 days; 434-0319 evenings) if you'd like to be a part of our team!!! Nominations for the Executive will close at the Annual Chapter business meeting, to be held concurrently with the Chapter's Christmas party on December 16th.

On other fronts, the Chapter's Operations Committee (or whatever they call themselves these days) is currently compiling information on the health and overall state of financial affairs for the Chapter. The Committee hopes to be able to provide a brief report in the next issue of **KEWA**. This will simply show what we've been doing over the last few years, where the money's gone, and if we can continue current trends. Also enclosed will be a brief survey for the membership, asking what you feel the Chapter's priorities should be, and how best we can balance and continue to do the wide range of things we do in the London Chapter. The intent of all this is to plan for the future, because the only thing we can count on presently is that external funding sources will continue to disappear, so we better know now how we're going to support ourselves!

SOCIAL REPORT

As mentioned on the cover of this issue of **KEWA**, the Christmas Party will be at Christine and Dana's home, on Saturday, December 16th. We don't have any firm ideas yet about what to bring and what will be available to eat and drink, but rest assured next month's newsletter will have all the details.

EDITOR'S REPORT

This month we include an article from Ian Kenyon, of the Ontario Heritage Foundation. Ian's ongoing research into 19th century Ontario has ranged from ceramics to Ghost towns, and this study fits nicely into that work, by looking at broad patterns of settlement and abandonment in rural southern Ontario. This paper was first presented at the OAS symposium held in Niagara Falls a couple of years ago, so if you roll up and hold the newsletter to your ear, you can hear the roar of the Falls!!! I know, I know, pretty lame, but I've got to fill this page up somehow!!

"WEEDS UPSPRING WHERE THE HEARTH SHOULD BE": RURAL HOUSE ABANDONMENT IN SOUTHERN ONTARIO¹

Ian Kenyon

A site type often encountered in the course of archaeological field surveys is the rural house abandoned in the 19th or early 20th centuries. The creation of such sites is related to two phenomena well-recorded in contemporary documents. Initially most houses were built of logs, but as settlement progressed these were often replaced by "improved" structures of frame, stone or brick construction. Later, in the half-century between 1880 and 1930, came a second phase of house abandonment, when much of rural Ontario underwent a general depopulation. This paper examines these two periods of house abandonment, and looks more specifically at the underlying factors². In particular, contemporary descriptions and statistical information from census records will be used to develop a framework for understanding the space-time dimensions of rural house abandonment and loss.

At the opening of the 19th century, European settlement in Ontario was largely confined to the loyalist-settled townships arrayed along a narrow strip bordering the St. Lawrence River, Lake Ontario and Lake Erie – an area inhabited by less than 100,000 people (Figure 1). From this ribbon-like core, only about 25 to 50 miles wide, settlement expanded northwards. From the late 1820s to the 1850s there was a tremendous wave of emigration to Ontario, especially from Scotland and Ireland. Each year, something like 10,000 to 50,000 emigrants arrived in British North America, many

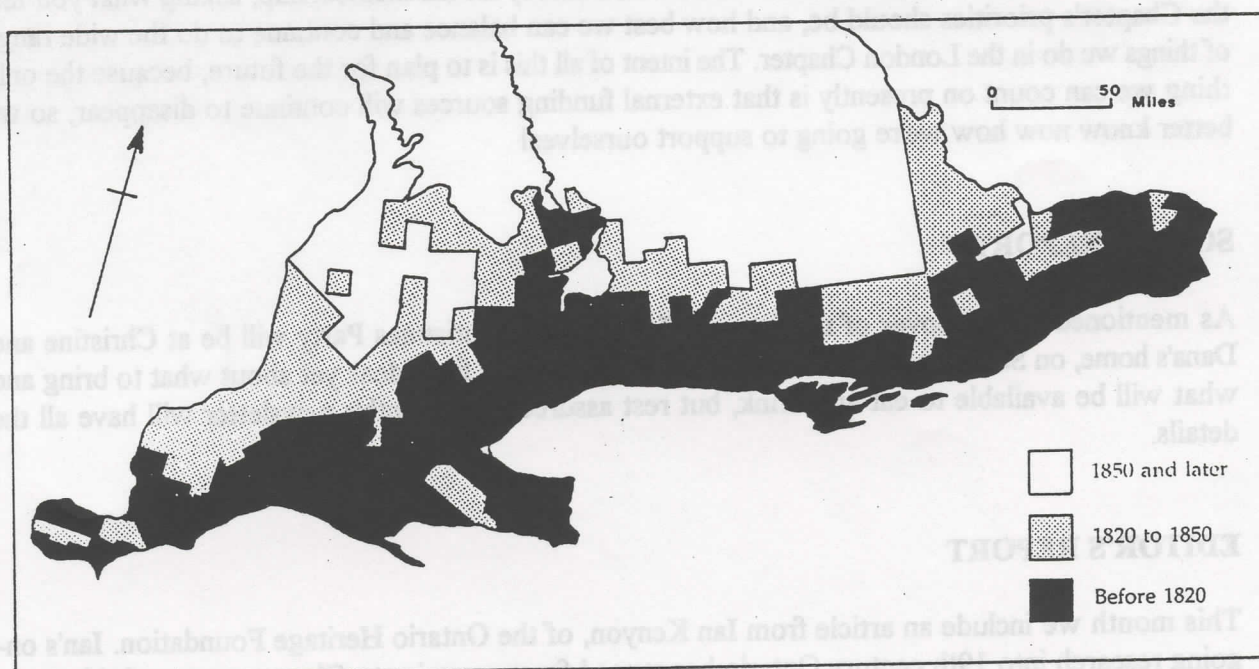


Figure 1: Date of First Settlement for Townships in Southern Ontario (source: see endnote 5).

attracted to Ontario where interior townships were rapidly being opened for settlement. By 1851, rural population in Ontario exceeded 800,000 people. Although emigration declined in the 1860s, still, by about 1880, most townships in Ontario south of the Canadian shield were reasonably well-settled. In fact, rural population peaked in the 1880s, reaching a total of about 1.4 million.

LOG HOUSING IN EARLY ONTARIO

Many 19th century accounts chronicle the pioneer experience. Unless a settler had independent means, their first house was usually a log cabin or shanty. Only later was it possible to build a more substantial dwelling of frame, brick or stone. Of these various house types, "Tiger" Dunlop wrote in 1832:

Most of the houses, more particularly those of recent settlers, are built of logs. When a man gets on a little in the world, he builds a frame house, weather-boarded outside, and lathed and plastered within; and in travelling along the road, you can form a pretty accurate estimate of the time a man has been settled, by the house he inhabits;— indeed, in some instances, you may read the whole history of his settlement in the buildings about his farmyard.

The original shanty, or log-hovel, which sheltered the family when they first arrived on their wild lot, still remains, but has been degraded into a piggery; the more substantial loghouse, which held out the weather during the first years of their sojourn, has, with the increase of their wealth, become a chapel of ease to the stable or cowhouse; and the glaring and staring bright-red brick house is brought forward close upon the road, that the frame-dwelling, which at one time the proprietor looked upon as the very acme of his ambition, may at once serve as a kitchen to, and be concealed by, its more aspiring and aristocratic successor.... (Dunlop 1967:130-131).

Cost and convenience dictated why log houses predominated in the backwoods — in remote settlements sawn lumber or bricks were either not available or very expensive; but logs could be had for free on the settler's own farm. Through the use of a "bee" — where neighbours were enlisted to erect a house — a log cabin could be built in a few days for as little as £5 to £10. In contrast, a frame house of modest size could cost 5 to 10 times as much³.

As a farm lot was cleared and more land put into production, frame or brick houses became more affordable. For those without independent means, 19th century writers suggested that it might take 10 to 20 years until the settler was in a financial position to erect an improved house. In 1855, Catherine Parr Traill advised prospective emigrants that:

... a wild farm is not to be made in one, two or even five years. — The new soil will indeed yield her increase to a large amount, but it takes years to clear enough to make a really good farm, to get barns and sheds and fences and a comfortable dwelling-house; few persons accomplish all this under ten, fifteen and sometimes even twenty years. I am

speaking now of the poor man, whose only capital is his labour and that of his family.... (Traill 1969:36-7).

Similarly, McGregor observed in 1832 that:

Few habitations can be more rude than those of the first settlers, which are built of logs, and covered with bark or boards.... The most that an emigrant can do the first year, is to erect his habitation, and cut down the trees on as much ground as will be sufficient to plant ten or twelve bushels of potatoes, and to sow three or four bushels of grain....In the course of five years, an industrious man may expect, and should have, twelve acres under cultivation....In ten years, the same man, with perseverance and frugality, ought to have from twenty-five to thirty acres under improvement....a comfortable house, a good barn, and plenty of food for himself and family. (McGregor 1832:I:468-469).

Such estimates of land clearing rates appear to be overly optimistic. As shown later, only in areas where cleared land exceeded 40 or even 50 acres per farm did improved houses supplant the log cabin. According to Peter Russell's (1983) calculations, an average farm family could clear about only 1.5 acres per year. It could take 30 or more years until a farm was productive enough to permit financial investment in a frame or brick house.

The relationship between the average amount of land cleared per farm and the amount of improved housing was reflected in the geography of 19th century Ontario. Many 19th century writers observed that in making a journey from the developed "front" townships to the backwoods the whole settlement history could be traced. For example, the Rev. Beaven in the early 1840s remarked on the change in landscape and house types in the Grand River area as he emerged from the backwoods and entered into the long-settled countryside:

...I had an opportunity of witnessing the clearing process in all its stages. In one place might be seen a few trees cut down, and the first rough shanty of boards set up....Then about an acre, with the trees felled, and lying irregularly about; about a couple of roods cleared in the centre of it, a small log cottage set up, and the rest planted with potatoes. This would be fenced in perhaps with the boards of the original shanty, nailed to a few stumps and small trees, with their tops cut off and left rooted in the ground....Further on the process has advanced another step.....comfortable stables and barns are erected; an addition is perhaps made to the log hut; the chimney, which was of wood, filled in and plastered with clay, is replaced by one of brick or stone, built up from the ground....As we approach the older settled country, the rough clearings scarcely appear, such as the first I described: the farm buildings, (all of wood) become capacious, and are kept in good order. There is a good garden with upright paling or boards; and a substantial frame-house, painted white or rough-cast, with its neat verandah, and pretty green French blinds, shows that the occupier has triumphed over necessity, and possesses both leisure and ability to think of comfort, even perhaps of elegance. (Beaven 1846:58-62).

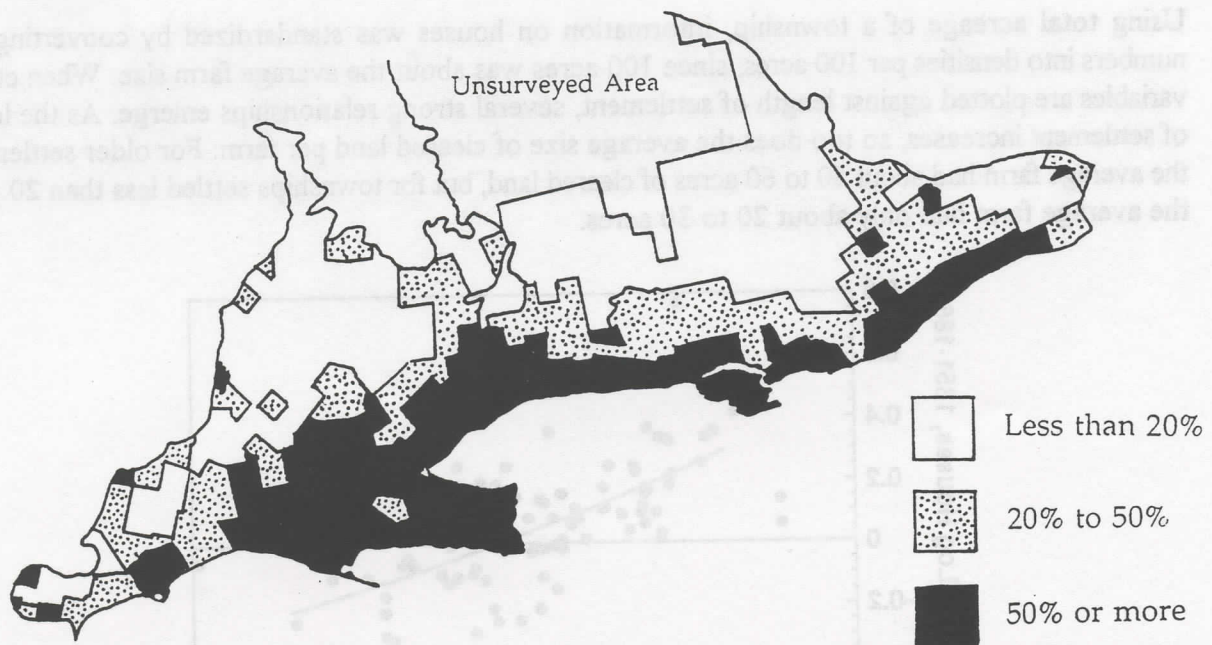


Figure 2: Percentage of Improved (non-log) Housing in 1861 (source: Wightman 1974).

In fact, spatial distribution of housing material types for 1861, as shown in a map (Figure 2) by the geographer W.R. Wightman (1974), very much parallels the settlement history of Ontario (Figure 1). To the south, in the old loyalist core bordering the Lakes, most townships had over 50% improved housing. But further north, in the backwoods, this figure declines, and log cabins predominated.

Printed census records provide a source of information that can be used to obtain quantitative information about house types.⁴ Unfortunately only the 1851 and 1861 censuses contain details on house construction materials. As a result, it is not possible to use census records to develop a longitudinal study to trace changes in house construction material throughout the 19th century. With the 1851 and 1861 data, however, a sort of "cross-sectional" study can be made, since, as indicated above, different parts of Ontario were settled at different times.

To examine quantitatively the shift from log to improved housing the following variables were recorded for 89 townships, using printed census records:

- number of log houses in 1851 and in 1861;
- number of improved houses (frame, brick and stone combined) in 1851 and in 1861;
- number of farms in 1861;
- amount of land occupied and cleared in 1861;
- total acreage of the township; and
- length or age of settlement (i.e. 1861 minus the year when township was first settled⁵).

Using total acreage of a township, information on houses was standardized by converting raw numbers into densities per 100 acres, since 100 acres was about the average farm size. When certain variables are plotted against length of settlement, several strong relationships emerge. As the length of settlement increases, so too does the average size of cleared land per farm. For older settlements the average farm had about 50 to 60 acres of cleared land, but for townships settled less than 20 years the average farm had only about 20 to 30 acres.

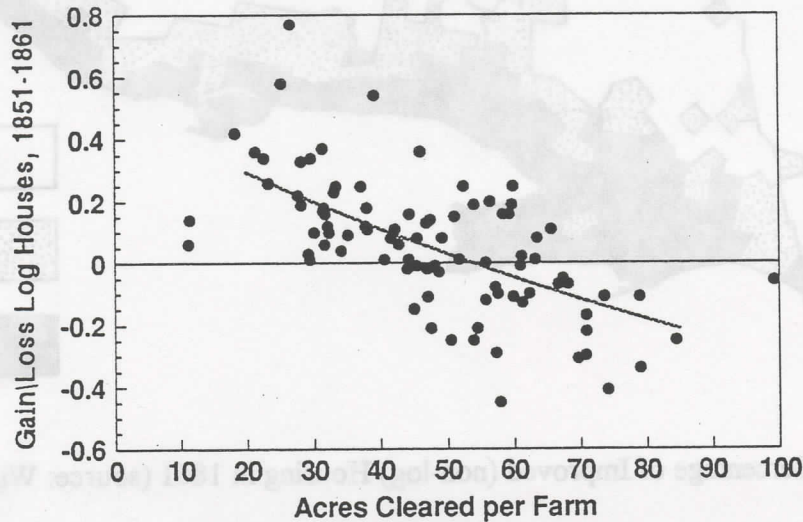


Figure 3: Gain/Loss of Log Housing between 1851 and 1861 (Density per 100 Acres) vs. Average Cleared Acres per Farm.

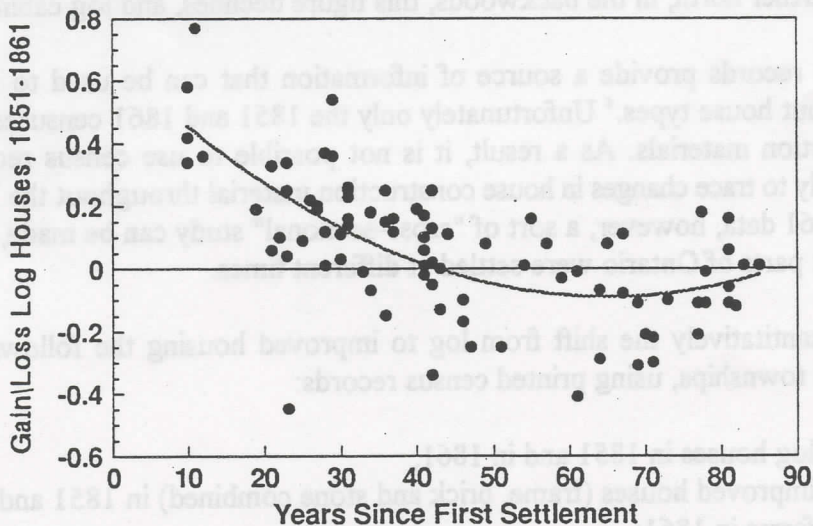


Figure 4: Gain/Loss of Log Housing between 1851 and 1861 (Density per 100 Acres) vs. Length of Settlement.

In general, house density increases with the age of settlement and with acres cleared. When, however, densities of log and improved houses are considered individually, two different trends are apparent. Improved housing increases with the length of settlement and with cleared acreage. In contrast, log housing density decreases with the same two variables. When the difference of log housing density between the 1851 and 1861 censuses is plotted against acreage cleared, there is a net loss of log housing in townships that average over 53 cleared acres per farm (Figure 3). For townships that had been settled for about 40 to 70 years there is a tendency for log house density to drop between 1851 and 1861: typically the loss may be -0.1 to -0.3 per 100 acres (Figure 4). That is, for certain townships something like one out of every 5 to 10 log houses disappeared in the decade between 1851 and 1861.

A decrease in log house density is therefore determined by both the length of time a township has been settled and the amount of land cleared per farm. When these two variables are considered together, generally the loss of log houses tends to occur only in townships that have been both settled for over 40 years and where the average amount of cleared land per farm exceeds 50 acres (Figure 5).

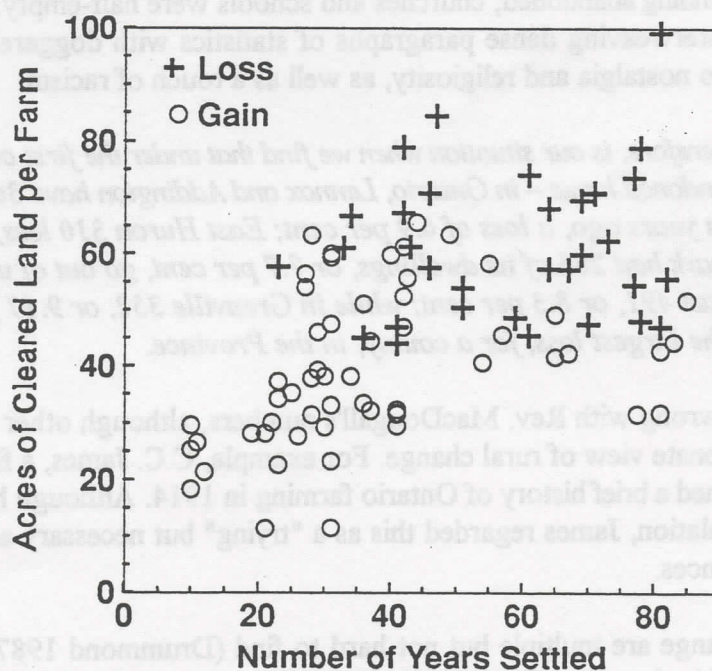


Figure 5: Net Gain/Loss of Log Housing between 1851 and 1861 vs. Length of Settlement and Average Acres Cleared per Farm.

These quantitative estimates of log cabin loss have certain limitations. Not all log cabins truly disappeared. As Dunlop suggested, some could be converted into outbuildings, while others could have been framed or bricked over and therefore be counted in the next census as an improved house (e.g. Rempel 1867: 23). As well, these figures are overall losses, they do not take into account log houses built in the decade between 1851 and 1861. Once again, there is nothing unique about this decade, however it is the only period for which such systematic comparisons can be made.

LATE 19TH AND EARLY 20TH CENTURY RURAL DEPOPULATION

Clearing forests and replacing log cabins with frame or masonry houses should have provided a satisfying finale to the saga of pioneer settlement. But by the early 20th century, it was increasingly evident that Ontario's countryside was once again being transformed. A conspicuous feature of this change was in its demographics: a decline in the number of people who lived in rural Ontario. Each census between 1891 and 1921 recorded a net loss in Ontario's rural population (Cudmore 1912; Watson 1947; Young 1972). In contemporary writings "rural depopulation", as it was termed, created an emotion-laden debate⁶. For example, to the Rev. John MacDougall, in his 1913 book *Rural Life in Canada*, the 1911 census provided sufficient statistical documentation that a great social evil was loose in Canada's countryside. The agrarian base – the source of its moral strength – was in decay: farm houses were standing abandoned; churches and schools were half-empty. McDougall bolstered his arguments by interweaving dense paragraphs of statistics with doggerel poetry⁷, set within a context of appeals to nostalgia and religiosity, as well as a touch of racism.

How serious, therefore, is our situation when we find that under the first count in the social strain – the abandoned home – in Ontario, Lennox and Addington have 366 fewer dwelling houses than ten years ago, a loss of 6.9 per cent; East Huron 310 less, a loss of 7.5 per cent; North Lanark had 265 of its dwellings, or 7.7 per cent, go out of use in the decade; and Lambton East 491, or 8.3 per cent; while in Grenville 352, or 9.17 per cent, became unoccupied – the largest loss, for a county, in the Province.

There was nothing wrong with Rev. MacDougall's numbers, although other contemporary writers took a more dispassionate view of rural change. For example, C.C. James, a former deputy minister of agriculture, published a brief history of Ontario farming in 1914. Although he noted the decline in Ontario's rural population, James regarded this as a "trying" but necessary adaptation to changing economic circumstances.

Reasons for this change are multiple but not hard to find (Drummond 1987). In part, people left Ontario's rural townships because of a perception of better economic opportunities elsewhere: in the cities, in the United States and in Canada's own west. The opening of the CPR line in 1886 finally made the bulk transportation of people and commodities between Ontario and the west practical. As a result, population of the prairies expanded rapidly, and the west became the wheat producing region of Canada. The west attracted many people from Ontario; for example, in 1911, 16% of the population of western Canada was Ontario-born.

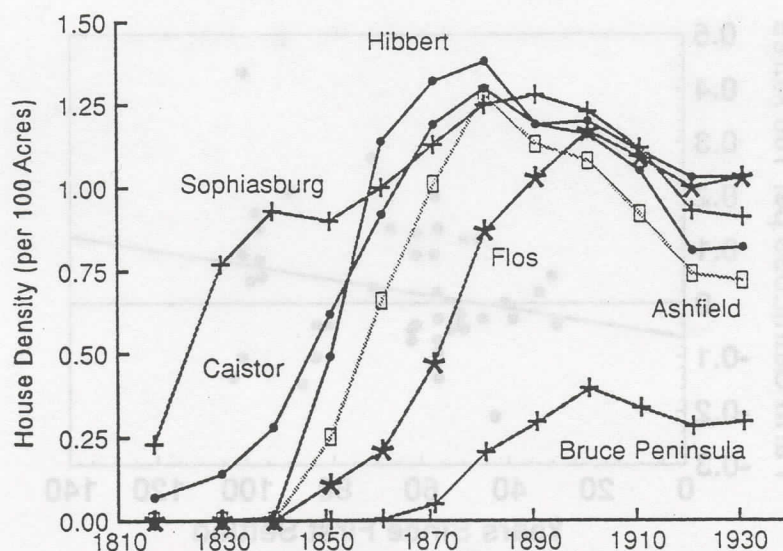


Figure 6: Housing Density per 100 Acres for Six Example Rural Townships, 1817-1931.

The structure of Ontario agriculture was also changing (Drummond 1987; Lawr 1972). With a shift to mixed farming between 1881 and 1931, wheat production dropped by more than half and there was a corresponding increase in livestock and fodder crops like oats and hay. While the McKinley tariff act of 1891 restricted agricultural exports to the United States, "finished" farm products like beef and pork, butter and cheese, found a ready and profitable market in the rapidly growing cities of Ontario. Mechanization – at first based on horse power, later on steam and gasoline – resulted in labour-reducing farm efficiencies. While the number of farms decreased, as did farm population, overall farm acreage for Ontario remained much the same.

To examine more precisely the effect of rural depopulation on housing stock, information on house and farm density between 1817 and 1931 was compiled for a sample of 45 rural townships; that is, townships that never contained an incorporated village⁸. When house density profiles are charted through time, some intriguing differences and similarities emerge (e.g. Figure 6). Since the sample townships were first settled at different times – from as early as 1780 to as late as 1852 – the initial population "take-off" dates are correspondingly variable. Also there are marked differences in the slope or rate of increase. The old loyalist townships (e.g. Sophiasburg) – those settled before the War of 1812 – tend to show a gradual increase in house density. In contrast, the new townships (e.g. Hibbert) like those in the Huron Tract and Queen's Bush – first opened to settlement during the 1830s and 1840s when immigration was at a peak – tend to have high initial growth rates. Despite these differences, most townships reach their peak density between 1870 and 1890 at about 0.8 to 1.7 houses per 100 acres. Townships with little arable land, however, may have lower overall densities (e.g. Bruce Peninsula). Most, but not all townships, display a decreasing density after 1881, with a tendency for the rate of decline to be similar. So, notwithstanding the different dates and rates of settlement there is a sort of "equifinality" in the abandonment of rural housing in the late 19th and early 20th centuries.

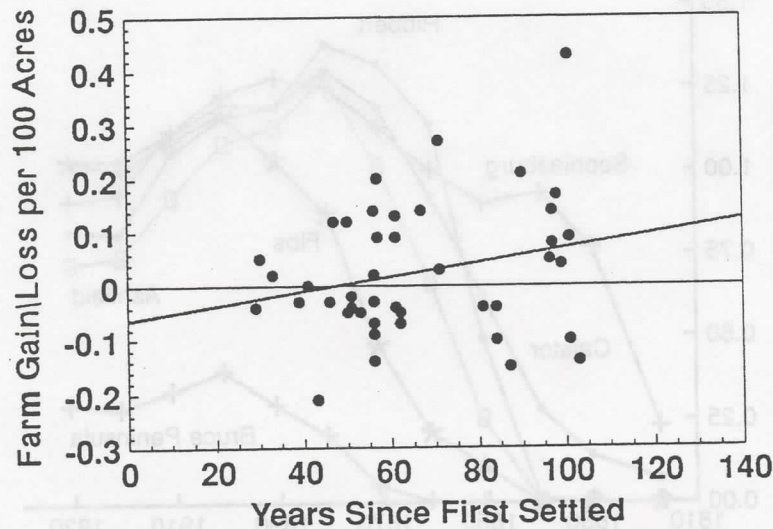


Figure 7: Gain/Loss of Rural Housing between 1881 and 1911 (Density per 100 Acres) vs. Length of Settlement.

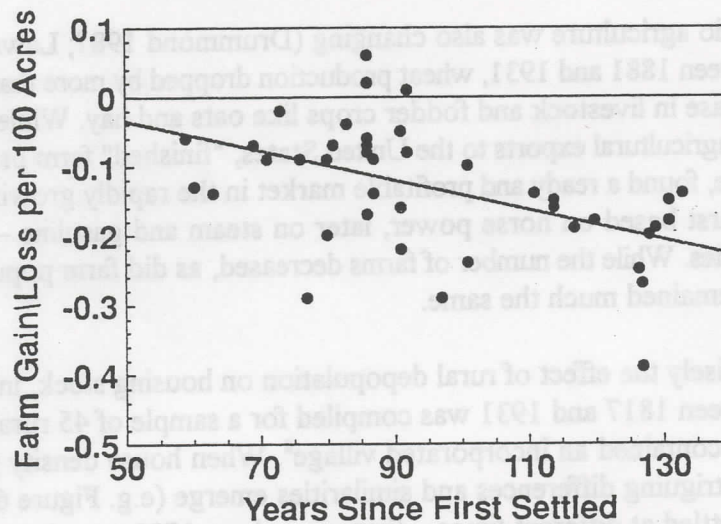


Figure 8: Gain/Loss of Rural Housing between 1911 and 1931 (Density per 100 Acres) vs. Length of Settlement.

Overall, loss of farm houses between 1881 and 1931 is about 10 to 20% for many townships. There is, however, a difference between the old and new townships in the date when such housing loss takes place. For the 1881-1911 period there is a positive trend between the length of time a township had been settled and the gain of rural housing (Figure 7). During this period it is mainly the new townships – those settled after the War of 1812 – where house loss occurs.

Between 1911 and 1931 there is a contrasting trend: a negative correlation between length of settlement and increase of house density (Figure 8). While almost all townships were now losing

houses, the loss is greater in the old townships. For the new townships a loss rate of about -0.1 per 100 acres is typical; for the old township this figure approaches -0.2. In all, between 1881 and 1931 many rural townships in Ontario displayed a decrease of about -0.1 to -0.3 houses per 100 acres. In effect, one out of every 5 to 10 farm houses disappeared – a figure, in fact, similar in scale to the loss of log houses at an earlier time. Except for areas of marginal agriculture, farm land itself was not abandoned, but combined with existing holdings. As farm house density decreased, farms became larger. In the 45 sample townships, farm size increased by 20% — from 96 acres in 1881, to 115 in 1931⁹.

Such depopulation and farm house loss can be vividly illustrated by comparing two maps of the central portion of Ashfield Township in Huron County. Ashfield was one of the new townships, first settled around 1838, reaching a population peak in the 1881 census (Figure 6), about the date of the 1879 map data shown on the left in Figure 9. In 1879 the 10,800 acre block contained 109 houses, mostly those of farmers: a density of 1.01 per 100 acres. On the right in Figure 9, is house location data taken from a 1932 topographic map. By this time, a half century after the first map, there were only 87 houses. Density had declined to 0.81 per 100 acres – one out of every 5 houses had vanished.

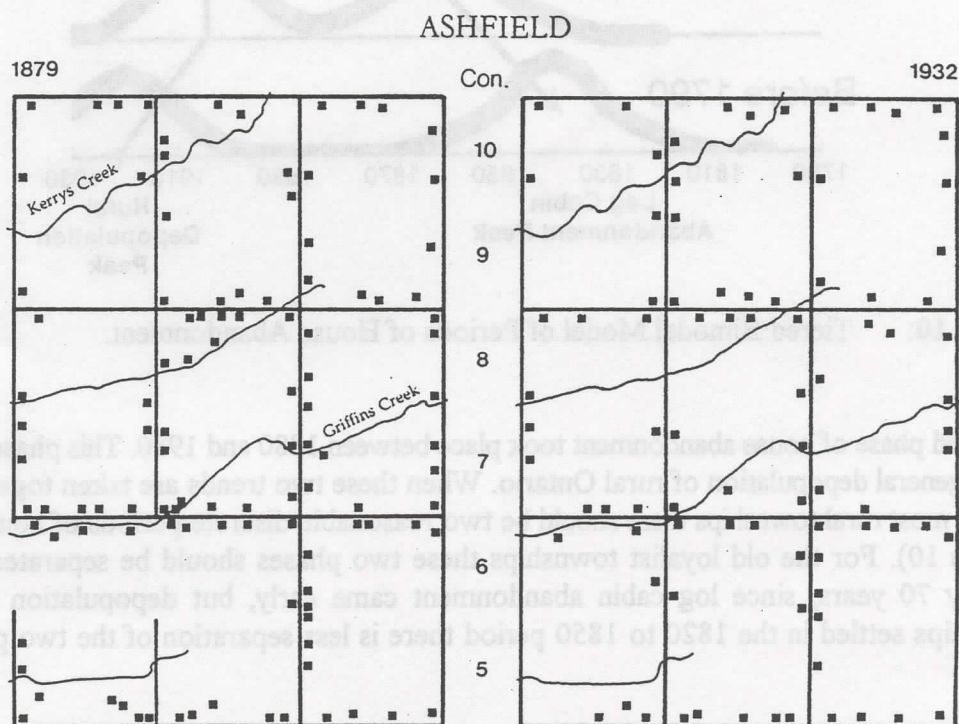


Figure 9: Locations of Houses in a Portion of Ashfield Township, Huron County; in 1879 (left) and in 1932 (right).

SUMMARY AND IMPLICATIONS

As discussed earlier, initially most houses were built of logs, but as settlement progressed, and land was cleared and put into agricultural production, these were often replaced by "improved" structures of frame, stone or brick. Typically this period of log cabin abandonment occurs about 40 to 70 years after first settlement, although the rate of farm clearance has a contributing effect. In the southern tier of counties, which were first settled in the late 18th century, this phase of log cabin abandonment should occur at a relatively early date, about 1830 to 1850. In the more northerly tiers of counties, which were settled more recently, this phase should correspondingly occur later.

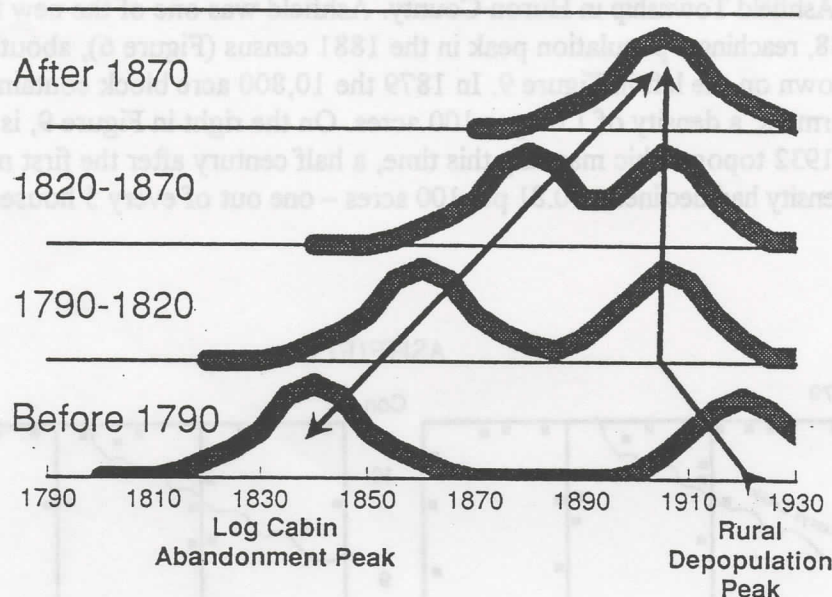


Figure 10: Tiered Bimodal Model of Periods of House Abandonment.

A second phase of house abandonment took place between 1880 and 1930. This phase was associated with a general depopulation of rural Ontario. When these two trends are taken together it is evident that for most rural townships there should be two reasonable discrete periods of house abandonment (Figure 10). For the old loyalist townships these two phases should be separated by a period of roughly 70 years, since log cabin abandonment came early, but depopulation after 1910. For townships settled in the 1820 to 1850 period there is less separation of the two phases, about 50 years.

In the more remote townships settled late in the 19th century, the two phases may coincide, so that the early 20th century period of depopulation is also the time when log cabins are abandoned. For example, in the Bruce Peninsula housing density reached a peak in 1901, and many of these structures were still first generation log cabins. But the Bruce, like the more southerly townships, also suffered rural depopulation, so that by 1921 it had lost almost one-quarter of its houses.

This model has certain implications for analyzing the results of regional archaeological surveys. One is that in most parts of southern Ontario, if terminal dates (not the median dates) of rural homestead sites are plotted through time, there should be two date clusters, which correspond to the two eras of house abandonment. Furthermore, if many log cabins are being abandoned at about the same time and being replaced by improved structures, it would seem likely that these households would be at a similar economic level, since they had enough wealth to erect more substantial dwellings. In such cases, the abandoned cabin sites may display similar material cultures. It would be interesting to know more about the socio-economic features (e.g. income, farm productivity) of families that abandoned farm houses during the period of rural depopulation at the turn of the century. If this phenomenon tended to occur on more marginal farms, then such sites may not represent a random sample of households for the period, but rather ones of lesser wealth.

Looking at broadly defined regions (the "tiers"), this paper deals only with some general trends for southern Ontario in the 19th and early 20th centuries. For any particular locality under study there should be documents (e.g. census and assessment returns, historical maps) that may be able to provide township-specific information – a "calibration" – on periods of house abandonment. Such data can help archaeologists, particularly those in the planning and consulting fields, in making determinations of relative site significance or rarity for any 19th century site under investigation. But such an approach requires the archaeologist to be aware not just of "mean ceramic dates," but also of historically and archaeologically defined initial and terminal dates for the site in question. With such information it may be possible to equate any discussion of site significance to both truly local and broad regional measurements of rarity and representativeness.

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ENDNOTES

1. A version of this paper was given at the 1993 meeting of the Ontario Archaeological Society, held in Niagara Falls. Thanks to Susan Kenyon for tracking down some of the printed census material, and to Neal Ferris for his editorial assistance.
2. Since there is a decided spatial aspect to this, changes in house types and population densities are features of settlement well-studied by historical geographers, notably W.R. Wightman and his colleagues (e.g. Clarke et al 1978; Taylor et al 1986; Wightman 1974).
3. In 1817 — a time of high prices — Gourlay (1974:292) reported the cost of a log house at £25 and a "good" frame house between £125 to £250. In 1824, E.A. Talbot cited £10 10s as the cost of a log house fit for settlement duties. Respondents to a 1840 questionnaire about farm making costs gave slightly different estimates (Ankli and Duncan 1984). Estimated costs to construct a log house ranged between £5 and £20, although the Canada Company respondent said one could be built through a "bee" for only £2.10. Costs for frame houses were higher, ranging from £50 to £90. An 1843 folder, issued by the Canada Company to attract prospective settlers to its lands, gave the price of a "comfortable Log House, 16 feet by 24, two floors, with shingled roof" as £9 (Coleman and

Anderson 1978:118). The same document indicates a cost of £50 for a frame house of the same dimensions. This must be taken as a minimal price for most frame houses were larger than 16' by 24'.

4. Printed census records consulted include volumes in the following series:

Census of the Canadas 1851-52. 2 vols. (1853-55)

Census of the Canadas 1860-61. 2 vols. (1863-64)

Census of Canada 1870-71. 5 vols. (1875)

Census of Canada 1880-81. 4 vols. (1882-85)

Census of Canada 1890-91. 4 vols. (1893-97)

Census of Canada 1901. 4 vols. (1902-06)

Census of Canada 1911. 6 vols. (1912-15)

Census of Canada 1921. 5 vols. (1924-29)

Census of Canada 1931. 13 vols. (1933-42)

Census of Canada 1941. 11 vols. (1944-50)

5. Following the practice of Taylor et al (1986) the date of first settlement was taken from the answer to question 1 in the township-by-township survey that appeared in Appendix B of the *Report of the Ontario Agricultural Commission* (Ontario 1881).

6. This phenomenon also occurred in the United States. Barron (1984) summarizes some of the contemporary social commentary on rural depopulation, and provides an account of the economic and social impact in a New England rural community.

7. For example:

Stands a house by the river side,

Weeds upspring where the hearth should be,

Only its tottering walls abide,

8. Number of houses per township was not given in the 1921 and 1931 censuses. These were estimated by dividing the township population by the average household size for those years. Pre-1851 information was taken from assessment rolls where, too, house numbers had to be estimated from population size by dividing this figure by the average household size as given in the 1851 census. Information on number of houses in 1817 was taken from Gourlay's *Statistical Account of Upper Canada* (1974).

9. These figures compare well for the averages for all Ontario farms: 93 acres in 1881; 119 acres in 1931.